

## CLAIMS

What is claimed is:

*Su A*

1. A shared memory processor-to-processor mailbox between at least two processors, comprising:  
a shared memory accessible by a first processor and a second processor, said shared memory including a first mailbox portion to pass data from said first processor to said second processor, and a second mailbox portion to pass data from said second processor to said first processor;  
said first mailbox portion starting at a low physical address end of said shared memory, and filling upward toward a high physical address of said shared memory;  
said second mailbox portion starting at said high physical address end of said shared memory, and filling downward toward said low physical address of said shared memory; and  
said first processor having write access to said first mailbox portion and not to said second mailbox portion.

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2. The shared memory processor-to-processor mailbox between at least two processors according to claim 1, wherein:  
said second processor has write access to said second mailbox portion and not said first mailbox portion.

25 3. The shared memory processor-to-processor mailbox between at least two processors according to claim 1, wherein:  
said first processor has read access to said first mailbox portion and to said second mailbox portion.

4. The shared memory processor-to-processor mailbox between at least two processors according to claim 3, wherein:

    said second processor has read access to said first mailbox portion and to said second mailbox portion.

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5. The shared memory processor-to-processor mailbox between at least two processors according to claim 1, wherein:

    said shared memory is a dual port random access memory.

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6. The shared memory processor-to-processor mailbox between at least two processors according to claim 1, wherein:

    said first processor has read access from both said first mailbox portion and said second mailbox portion while having write access to said first mailbox portion and not to said second mailbox portion.

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7. The shared memory processor-to-processor mailbox between at least two processors according to claim 6, wherein:

    said second processor has read access from both said first mailbox portion and said second mailbox portion while having write access to said second mailbox portion and not to said first mailbox portion.

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8. A method of utilizing a shared memory as a mailbox between two processors, comprising:

allocating first direction messages passed from a first processor to a second processor to a first physical address end of said shared memory;

allocating second direction messages passed from said second processor to said first processor to a second physical address end of said shared memory opposite said first physical address end;

allowing said first direction messages to utilize a dynamically allocated central portion of said shared memory growing toward said second physical address end; and

allowing said second direction messages to utilize said dynamically allocated central portion of said shared memory growing toward said first physical address end.

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9. The method of utilizing a shared memory as a mailbox between two processors according to claim 8, further comprising:

assigning a minimum length to said first physical address end.

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10. The method of utilizing a shared memory as a mailbox between two processors according to claim 9, further comprising:

assigning a minimum length to said second physical address end.

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11. The method of utilizing a shared memory as a mailbox between two processors according to claim 8, further comprising:

reallocating a portion of a minimum length of said first physical address end of said shared memory to enlarge a size of said dynamically allocated central portion utilized by said first processor.

*Suek*

12. The method of utilizing a shared memory as a mailbox between two processors according to claim 11, further comprising:  
reallocating a portion of a minimum length of said second physical address end of said shared memory to enlarge a size of said  
5 dynamically allocated central portion utilized by said second processor.

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13. Apparatus for utilizing a shared memory as a mailbox between two processors, comprising:  
means for allocating first direction messages passed from a  
10 first processor to a second processor to a first physical address end of said shared memory;  
means for allocating second direction messages passed from said second processor to said first processor to a second physical address end of said shared memory opposite said first physical address  
15 end;  
means for allowing said first direction messages to utilize a dynamically allocated central portion of said shared memory growing toward said second physical address end; and  
means for allowing said second direction messages to utilize  
20 said dynamically allocated central portion of said shared memory growing toward said first physical address end.

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14. The apparatus for utilizing a shared memory as a mailbox between two processors according to claim 13, further comprising:  
means for assigning a minimum length to said first physical address end.

15. The apparatus for utilizing a shared memory as a mailbox between two processors according to claim 14, further comprising:

means for assigning a minimum length to said second physical address end.

16. The apparatus for utilizing a shared memory as a mailbox between two processors according to claim 14, further comprising:

reallocating a portion of a minimum length of said first physical address end of said shared memory to enlarge a size of said dynamically allocated central portion utilized by said first processor.

17. The apparatus for utilizing a shared memory as a mailbox between two processors according to claim 16, further comprising:

means for reallocating a portion of a minimum length of said second physical address end of said shared memory to enlarge a size of said dynamically allocated central portion utilized by said second processor.